



# 2017-18 ANNUAL REPORT



The George Institute  
for Global Health India



Our mission is to improve the health of millions of people worldwide.

We aim to reduce premature and preventable deaths and disability.

Our focus in India is on non-communicable diseases, road traffic injuries and mental health.

Our work is guided by our values:

**Humanitarian commitment**

Spurs us to tackle the health issues affecting high-risk and disadvantaged people worldwide

**Focus on excellence**

Ensures we will produce scientific evidence that is ethical and of the highest quality

**Creativity**

Encourages us to challenge traditional thinking and provides an impetus for new and innovative solutions to the world's leading health problems

**Integrity**

Underpins all our work and interactions, including our collaborations with partner organisations worldwide

**A 'can-do' approach**

Helps produce timely, effective action, even in the face of adversity or other barriers to implementation

**Emphasis on impact**

Will ensure our work has real consequences for those who are most vulnerable to disease and injury

# Annual Report 2017/18

02	Our Mission and Values
04	From our Executive Director
06	Strengthening primary healthcare for universal health coverage
10	Kidney and Cardiometabolic Diseases
20	Mental Health, Neurology and Trauma
28	Research Dissemination
30	Our Governance
32	Our Key Partners, Funders and Collaborators
34	Our Finances
35	Our Team

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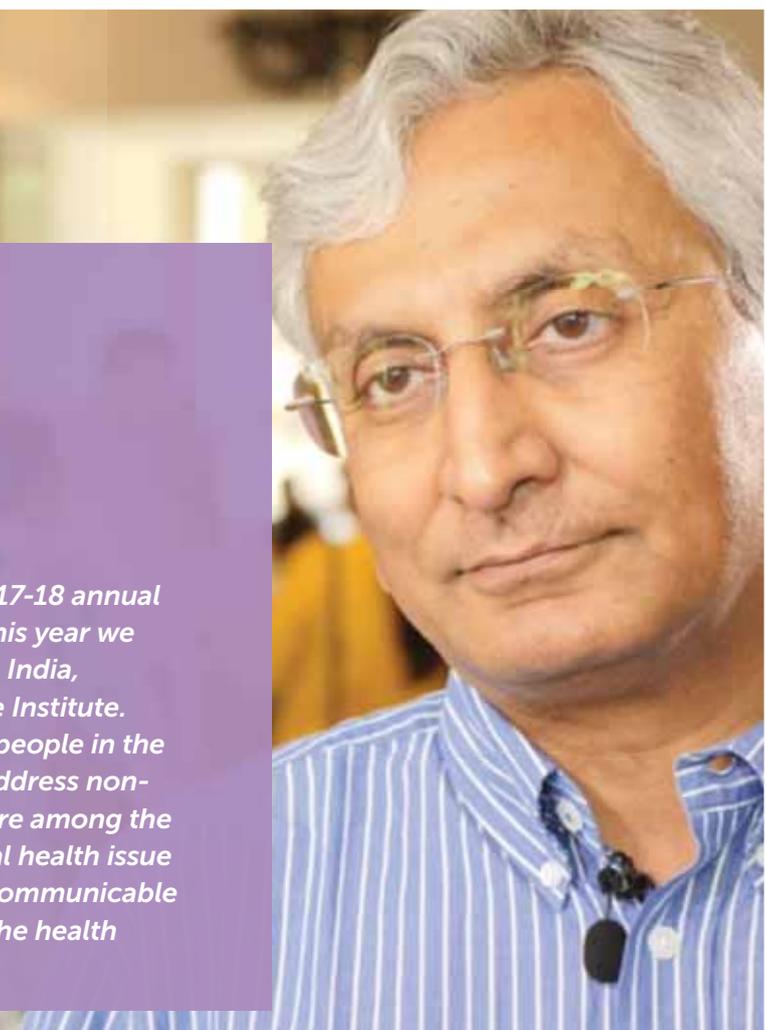
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The George Institute for Global Health is a global, not-for-profit organisation located in Australia, China, India and the United Kingdom. We are a registered charity in Australia and the United Kingdom. In India, we are registered under Section 25 of the Companies Act and recognised by the Department of Scientific and Industrial Research (DSIR), Government of India.

A portrait of the Executive Director, a man with grey hair and glasses, wearing a blue and white striped shirt. The background is a blurred indoor setting.

## From our Executive Director

*I am delighted to present to you the 2017-18 annual report of The George Institute, India. This year we completed 10 years of research work in India, an important milestone in the life of the Institute. When we started out in 2007, very few people in the world were talking about the need to address non-communicable diseases (NCDs). We were among the first ones to recognise this as the critical health issue for 21st century India. Over time non-communicable diseases have emerged as a priority in the health policy sector.*

The year gone by has been yet another year of considerable growth and success for the The George Institute, both in terms of expanding our research areas as well as expanding our efforts to reach out to various stakeholders. We grew our focus on our primary healthcare delivery research in the context of universal health coverage (UHC) and health equity, recognizing the need to ensure that no one is left behind in our effort to reach the unreached.

This year, The George Institute was pleased to welcome a number of exceptionally talented and productive early and mid-career researchers to its fold. They brought with them a diverse set of skills and expertise—health systems, health economics, data analytics, nutrition and systematic reviews to name a few.

Besides initiating new research projects on health equity and universal health coverage, we stepped up our advocacy, communication and development efforts, thereby creating broad synergy to address the growing NCD challenge. We have also expanded the scope of our research beyond discovery and implementation

research to look at big data analytics and economic and social impacts of healthcare programs.

The SMART<sup>health</sup> Extend program was tested in Haryana as well as in Indonesia, providing reassurance that the technology-enabled primary healthcare delivery model can be replicated in a variety of settings. We are extending the SMART<sup>health</sup> platform to cover other common conditions, like diabetes, kidney disease and respiratory disorders. We have also expanded our geographical reach to start new research collaborations in Thailand, Indonesia and Bangladesh.

Of note is a new program of work to define the burden of chronic kidney disease that develops due to unknown causes in some parts of Andhra Pradesh which is causing distress in the local community.

The project will do a root cause analysis and suggest measures to reduce disease burden. This project was started in response to a call by the state government, and is being implemented in close collaboration with the state health department.

Our research relating to mental health, neurology and trauma, received a boost when we were awarded a competitive Global Alliance of Chronic Disease (GACD) grant to conduct a randomized controlled trial to address the treatment gap in common mental disorders. We would be building on the pilot work in the West Godavari district of Andhra Pradesh. Similarly, we are part of an international research project that addresses the growing burden of stroke in India and how already functional stroke units in the country can develop capacities to deal with this.

Our health systems and equity work gathered momentum with a new project funded by the Wellcome Trust-DBT India Alliance that aims to assess the magnitude of inequities related to UHC-linked health reforms in Kerala. We will be using participatory, qualitative methods to assess the mechanisms underlying these inequities.

Advocacy and policy-influencing are integral components of our work that cut across all research areas. We continued to expand our media reach and media capacity development programs by taking the Critical Appraisal Skills for Health Reporting program to Peking University and by teaming up with the World Health Organization to sensitize journalists on road safety and injury reporting.

We continued to focus on training and capacity building of our staff as well as the wider research community. Training is targeted at all levels from PhD opportunities to our researchers, supporting research students from collaborating institutions, to developing new models of teaching for primary care physicians and non-physician healthcare workers.

None of this would be possible without the continued dedication and commitment of the Institute researchers and staff and an extensive network of national and international collaborators. Our work has received an immense boost from our supporters and funders. We are grateful to one and all-in particular to the Australian High Commission, Department of Biotechnology, Pfizer Foundation, Baxter Healthcare, Wellcome Trust/DBT India Alliance, and the European Foundation for Studies of Diabetes.

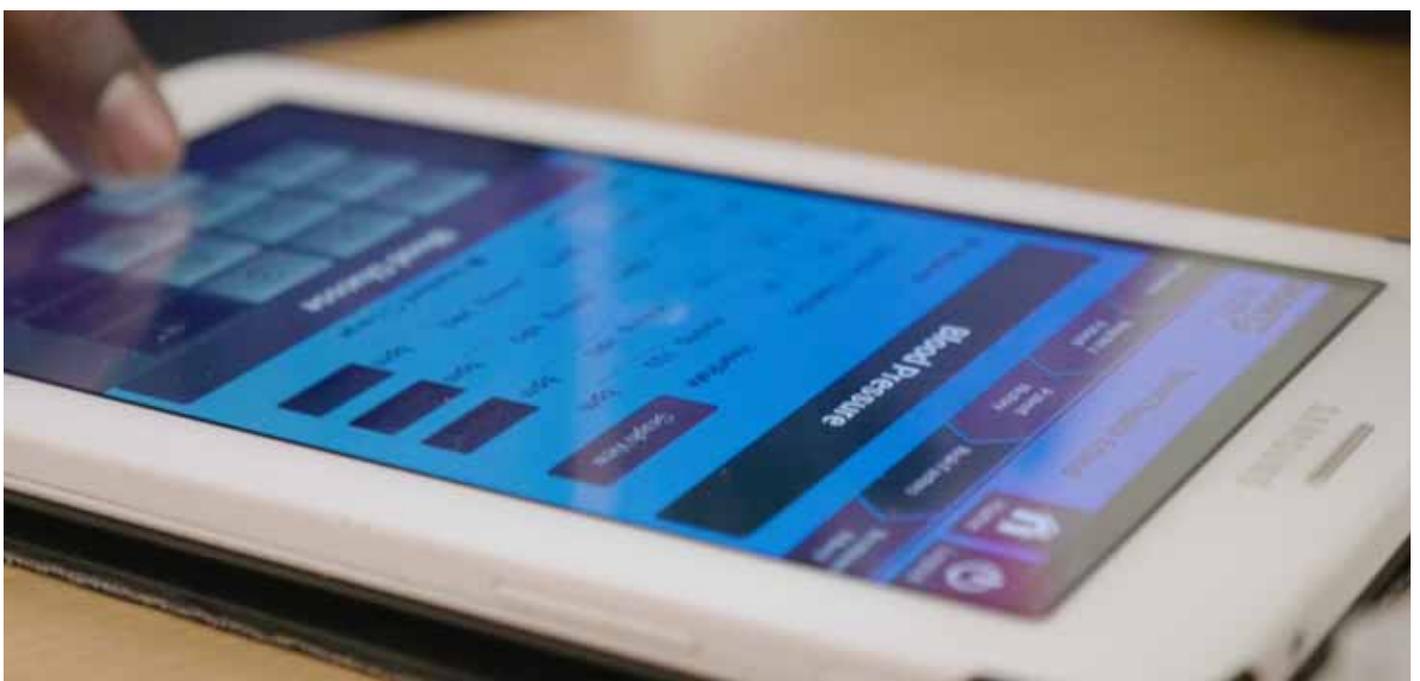
We particularly value our special relationship with the UNSW, Sydney with whom we share a common vision to grow academic excellence, social engagement and global impact. We jointly aim to improve and transform lives through excellence in research and a commitment to advancing a just society.

We live in exciting times-and strongly believe that improving the healthcare of populations requires evidence generation, effective communications and stakeholder engagement. We believe in working with all stakeholders-government, corporate organisations, civil society and NGOs to achieve our mission to improve the health of millions of people.



**Professor Vivekanand Jha**

Executive Director,  
The George Institute for Global Health, India





## Strengthening primary healthcare for universal health coverage

*An effective and non-intrusive primary healthcare system is the bedrock of managing the health and wellness of any country. Providing essential primary care to the 1.3 billion people of India, in particular to those who live in remote rural areas, work in unorganized sectors and do not have any insurance coverage is especially challenging. Emergence of non-communicable diseases, which affect about a quarter of the population in some form or the other, makes the job even more difficult.*

*These challenges require innovation such as leveraging the skills of the non-physician healthcare workers (NPHW) after training them in essential tasks and providing them modern efficiency tools that leverage information technology and wireless networks. These female health workers have additional advantages as hailing from the communities in which they work, they become the vital link between the system and the people.*

*Over the last 10 years, The George Institute developed a series of electronic tools and tested them in a variety of healthcare settings. Our findings show that when they are sufficiently empowered, NPHWs can vastly improve the efficiency of healthcare delivery in a primary care setting.*

*This has involved designing, modifying, implementing and evaluating a series of efficient, low-cost and sustainable interventions.*

*Understanding that these are not just technology solutions but need to be contextualized and tailored to the healthcare system, our research has focused on identifying potential enablers and barriers, with the key user (NPHW), and the person at the bottom of the pyramid as the key consumer in mind.*

*The platform that enables this approach is called Systematic Medical Appraisal, Referral and Treatment (SMART) Health. Initial trials investigated the potential of managing cardiovascular disease risk using this platform, and over time the scope is being expanded to include prevention and management of the top 10 causes of death and disability in India.*

*The findings of this program offer lessons for low and middle income countries. The platform has been tested in Indonesia and will soon undergo evaluation in Thailand.*

## Digital healthcare for villages

Non-communicable diseases have become a major cause of premature death and disability in India. Existing primary healthcare services are not equipped to manage these diseases and they require early intervention and regular monitoring throughout a person's lifetime. The wide gap between research and policy has made implementation of strategies to tackle them even worse.

A team of researchers at The George Institute have developed a low-cost, high-quality primary healthcare delivery system, which aims to bring state-of-the-art healthcare to people living in villages in rural India.

*SMARThealth* is an innovative system with the potential to play a significant role in addressing the rising burden of chronic diseases in India, by enabling community healthcare workers and primary healthcare doctors to identify and treat people at high risk of these conditions.

The platform relies on an android-based app, which makes it easy for the non-physician healthcare worker to record blood pressure, blood sugar and other risk factors like age, sex, smoking status. The data is then analysed to indicate the extent of NCD risk in a person. The blood pressure instrument and glucometers displays risk projection over a 10-year period. The blood pressure readings can also be directly transferred to the app as it is blue tooth enabled. This helps in minimising data errors and also saves time.

*SMARThealth* provides the healthcare worker with personalised evidence-based clinical decision support to manage a person's condition. Based on the analysis and recommendations, the healthcare worker can recommend precautionary measures, such as lifestyle changes, and refer those at high risk to doctors. The doctors can use the app to provide algorithm driven evidence-based treatment. All health worker activities

are complemented by regular monitoring, supervision and an interactive voice recorded system enabled feedback mechanism providing timely messages to community members to adhere to treatment guidelines.

The two key components of this intervention – task sharing between doctors and frontline health workers and the use of mobile-based technology for identification, referral and management of cardiovascular diseases – saves time and resources. It complements the existing primary healthcare infrastructure of the Government and the work of health professionals including the village level health workers and doctors.

Primary healthcare centres in rural India commonly serve around 30,000 people, often with only one or two doctors. In a low-resource context with severe healthcare workforce shortages and high out of pocket costs for patients, prioritising those at high risk for preventive treatment is a highly cost-efficient solution.

The *SMARThealth* program, which was initially piloted in Andhra Pradesh, has since been rolled out in Haryana as well as East Java in Indonesia. The study results have been encouraging and has reaffirmed our belief that it can be scaled up in different contexts, potentially helping to transform healthcare systems and improve the lives of tens of millions of people.

*SMARThealth* is also being adapted for antenatal and postnatal care to support frontline healthcare workers to identify and manage the care of pregnant women at high risk of future heart disease, stroke and diabetes in order to reduce premature deaths. Both type 2 diabetes and high blood pressure are directly linked to heart disease, and some of those at greatest risk are women who develop diabetes and high blood pressure during pregnancy.





## Assessing Equity of Universal Health Coverage in India

As we advance towards the achievement of SDG 3 through Universal Health Coverage (UHC) reforms in various Indian states, prior experience suggests that health interventions tend to privilege already advantaged populations, creating further inequity.

There is, therefore, an urgent need to understand the magnitude of inequities in the coverage of UHC at the state level related to age, sex, place of residence, religion, caste status, tribal status and district and how they have come about using both quantitative and qualitative research methods.

A new project supported by the Wellcome Trust/DBT India Alliance at The George Institute aims to assess the magnitudes of inequities related to UHC-linked health reform in the Indian state of Kerala and then use participatory, qualitative methods to assess the mechanisms underlying these inequities.

The pilot project will build on a novel and innovative approach undertaken with the World Health Organization to build capacity in the monitoring of health inequities in Kerala. Additionally, the project will also synthesise evidence on the health-seeking

behaviour of the urban poor to help shape the National Urban Health Mission.

“There is growing energy and momentum around health reform in India, and as researchers, we have an important role to play in bringing our knowledge to bear upon these changes. It is truly humbling to work closely with decision-makers at the state and national level, who are, on a daily basis, dealing with levels of complexity that easily surpass what we confront in a typical research project. I’m enthusiastic about the opportunity we have for collaborative learning and amplified impact through partnerships with policy makers,” says Dr Devaki Nambiar, Program Head, Health Systems and Equity at The George Institute.

The project will take a mixed methods approach in continuous partnership with the state health department and local academic partners, under the mentorship of eminent health equity scholars. The health systems research will involve an analysis of secondary data and primary data collection using qualitative and participatory action research methods.

While few, if any, would dispute the importance of paying attention to health inequalities in the process of health reform, in practice, this has proven to be difficult. Thus, even as equity and equality are pivotal aspects of universal health coverage, there is less clarity on how to systematically identify those who are being left out, which is the first in ensuring that they no longer are.

The Department of Information, Evidence and Research of the World Health Organization, with support from Dr Nambiar has over the past four years developed a system and process of health inequity monitoring relevant for health policy and programming in the SDG era. The system uses a software known as HEAT Plus that helps monitor inequity indicators.

The present project funded by the Wellcome Trust India Alliance builds upon this work. Talking about this innovative approach, Dr Nambiar says: "We are in the SDG era, where our work has to be nothing short of radical in its scope and reach—particularly as it relates to tackling health inequality. These articles point out three necessary components of health inequity monitoring: capacity, data of quality, and analytical software. But these three are by no means sufficient."

"Health inequity monitoring requires political commitment and champions, as we found in Indonesia. It should also serve the programming needs of decision-makers, and must more directly engage with the direct lived experiences of people. In an ideal scenario, HEAT Plus should be used for subnational, even sub district level decision-making and linked to qualitative, participatory research with communities facing vulnerability. This is the kind of work we at The George Institute have committed to doing in the coming years."





## Kidney and cardiometabolic diseases

*Over the last 30 years, the burden of cardiometabolic disease has increased tremendously worldwide, including in India. A number of risk factors, such as high salt intake, growing obesity, limited physical activity, smoking and air pollution have contributed to this rise. While some of these diseases like diabetes, high blood pressure, and cardiovascular disease have received due attention, others like chronic obstructive lung disease and chronic kidney disease have not.*

*Our research projects investigate the entire spectrum of important health problems related to cardiometabolic diseases: disease burden, associated risk factors responsible for their development and/or progression, their interaction with each other, their impact on quality of life, and the economic and social cost of treatment of these diseases.*

*Using a variety of approaches including large scale cohort-studies, use of big data analysis on large data sets, qualitative studies and randomized clinical trials, we hope to be able to develop appropriate tools for tackling these complex chronic conditions of these diseases. This requires action at multiple levels, starting from primary care, post-discharge care of those with chronic diseases, long-term rehabilitative care and supportive care. A large team of researchers with complementary skills works with colleagues within The George Institute and external collaborators to find answers to the emerging health problems related to this growing group of disorders.*

## Setting up a National Dialysis Registry

End-stage renal disease (ESRD) and its current standard of care-renal replacement therapy (RRT), dialysis and/or kidney transplantation-result in substantial economic and societal costs. In developed countries, ESRD affects about 0.03% of the total population, but RRT costs consumes up to 3% of the annual healthcare budgets. Most developed countries have renal registries that provide critical information to support the planning, delivery and evaluation of dialysis and transplantation services.

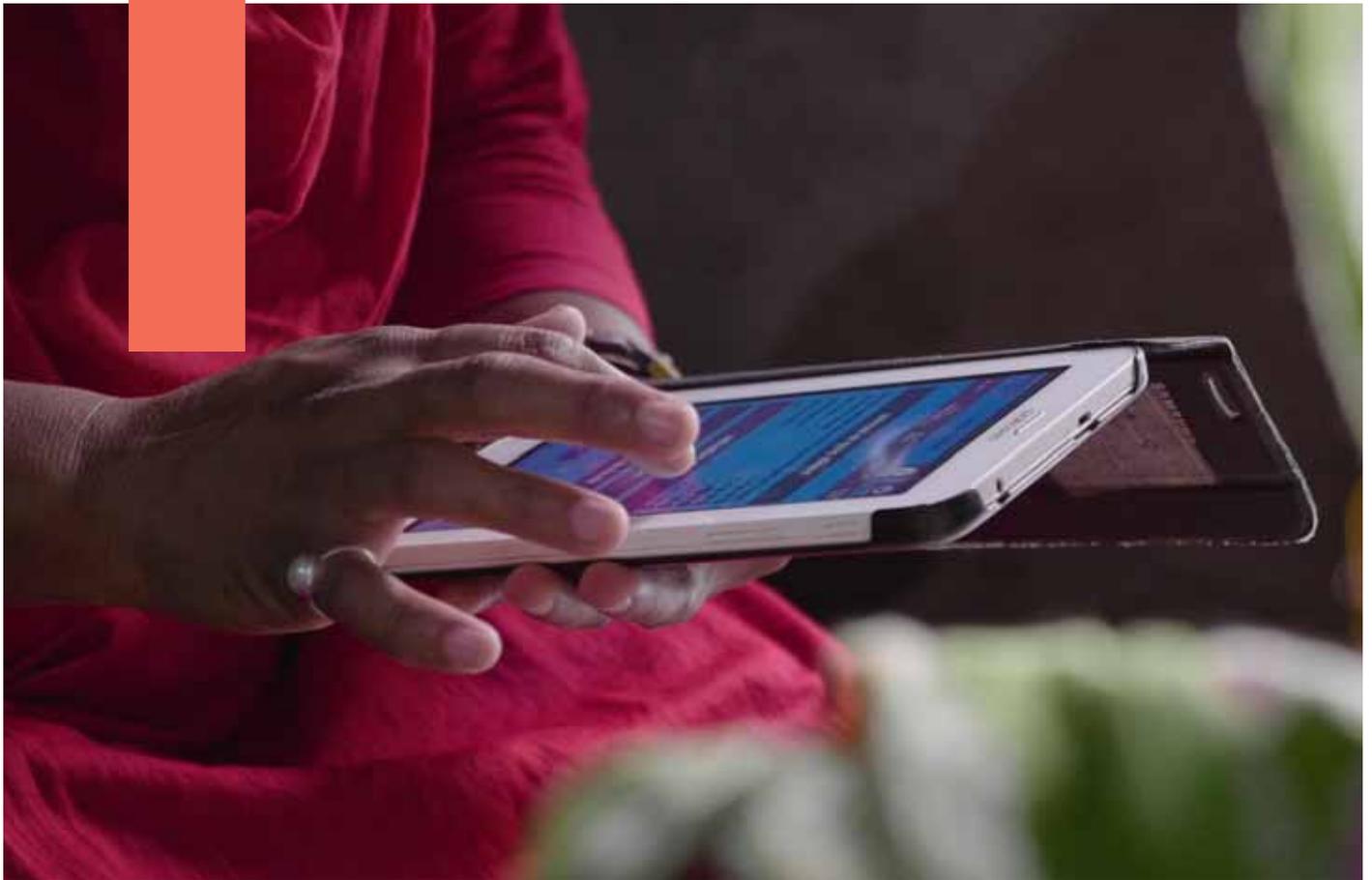
The lack of a nationwide renal registry means that there are few reliable statistics on RRT from India. Governments are currently unaware how many of their citizens are dying of advanced kidney failure. The impact of dialysis (where services are available) on outcomes and cost of care is not known.

As the country prepares to roll out the National Dialysis Program, a window of opportunity offers itself to embed a registry framework in the system with minimal effort and cost. Researchers at The George Institute are working on developing a web-based platform that will enable the staff at all dialysis centres to enter information on patients who are receiving this treatment for ESRD.

Earlier, researchers at The George Institute had conducted a prospective cohort study of dialysis outcomes on 117 patients at the Post Graduate Institute of Medical Education, Chandigarh, and the Medanta Hospital in Gurgaon in the National Capital Region to evaluate the feasibility of establishing a dialysis outcomes registry. The study revealed that diabetes and hypertension respectively are responsible for 27% and 26% of kidney failure. It also brought out the huge economic disparity and its impact on the patient and his/her family. Regular treatment had a positive impact on the economic well-being of the family by keeping them normal and productive but many patients were forced to give up dialysis for financial reasons.

A large multicentre study has also been conducted across the country to determine if there are any regional or geographic differences in the provision of renal replacement therapy. This will inform the policy on the evidence based approaches to designing strategies for the management of end stage kidney diseases in India.





## Remote Monitoring of dialysis patients

Patients in India with advanced kidney disease may soon be able to avoid lengthy travel to dialysis centres and specialist care in hospitals thanks to innovative health technology that enables better management of dialysis treatment at home. Researchers at The George Institute are developing a patient-centred, sustainable system to enable remote monitoring of patients undergoing peritoneal dialysis (PD).

By enabling early recognition of problems, the project aims to reduce morbidity, hospitalisation and deaths, and provide an affordable alternative to prevailing, labour-intensive models of kidney disease care.

Every year, around 220,000 people in India develop End-Stage Renal Disease (ESRD), a major cause of morbidity and mortality worldwide. The SUPPORT-PD system has the potential to transform treatment by reducing the need for repeated hospital visits that can affect quality of life, as well as drive up costs.

The common perception is that it is better to have dialysis under the supervision of a care provider rather than go for self-managed peritoneal dialysis.

Our research team is currently field testing the mobile health application that is user friendly and innovatively designed. Most users feel that this application would provide virtual support for the person undertaking PD at home. The mobile application has a highly interactive user interface and provides a virtual simulation of the actual care provision scenario and real-time clinical decision support and feedback to the users.

A key component of the study is the qualitative research to evaluate the perception and acceptability of the application by patients and care providers including primary care physicians and nephrologists.

This application paves the way for demonstrating the usefulness of remote monitoring for people on home dialysis.

## Indian Chronic Kidney Disease study

Chronic kidney disease (CKD) is a serious public health problem worldwide. The Global Burden of Disease Study estimated that about 3.5 million people have CKD, and 2.3 lakh died of it in India in 2016.

Besides being at risk of developing end stage kidney disease, patients with CKD are at high risk of developing cardiovascular disease (CVD). Other complications include anemia, bone disease, cognitive abnormalities and reduced quality of life. CKD treatment is expensive, hence ways to identify individuals at high risk of complications and offering them targeted interventions would be useful. This requires deep understanding of natural history and progression factors by undertaking large longitudinal studies of sufficient duration in this population.

The Indian Chronic Kidney Disease (ICKD) study aims to fill this gap by setting up a nation-wide cohort of about 5000 subjects with early stage CKD at leading nephrology centers in the country. They will be followed up for at least five years to understand the natural history and progression of the disease and clinical as well as laboratory factors that predict complications. This is one of the largest clinical cohort studies in India.

The study is funded by the Department of Biotechnology, Government of India, and is recruiting

subjects at PGIMER, Chandigarh, SGPGIMS, Lucknow, Osmania Medical College, Hyderabad, JIPMER, Pondicherry, CMC, Vellore, MPUH, Nadiad, Samarpan Kidney Center, Bhopal, IMS-BHU, Varanasi, IPGIMER, Kolkata, Madras Medical College, Chennai and IGIMS, Shimla. As of March 2018, the study has recruited around 3300 subjects. Across India, the first year follow up of 1600 patients have been completed. At the PGIMER, Chandigarh, the second-year follow-up of 400 patients is also complete.

A unique feature of this study is biobanking—consented subjects are providing biological samples that will allow application of ‘omics’ technologies to explore association of genetic and metabolic markers with kidney disease severity, progression, and elevated risk for CVD.

The study is also exploring the impact of CKD on quality of life of affected people and its socio-economic consequences. Validated instruments are being used to collect this information.

This study is part of a global movement that has led to setting up of similar cohorts in several countries. Using broadly similar approaches, comparison of findings from these cohorts will permit understanding of the influence of racial, ethnic and geographic factors that impact the life of people with CKD around the world.





### Therapeutic evaluation of Steroids in IgA Nephropathy – The TESTING Study

Kidney failure shortens the life of affected people, reduces quality of life and is expensive to treat. Prevention is key, as relatively few treatments have been shown to be effective.

IgA Nephropathy, where abnormal activity of the immune system causes kidney damage, is one of the most common causes of kidney failure but no specific proven treatment is currently available. Affecting mostly young adults, IgA nephropathy is the most common primary glomerular disease worldwide, and many patients develop chronic, slowly progressive kidney injury.

A global study of high-risk kidney patients called the 'Therapeutic Evaluation of STeroids in IgA Nephropathy Global Study' (TESTING Study) aims to provide data that will guide the treatment of IgA nephropathy patients. The study will include 1300 people and follow them for five years, assessing whether steroids safely prevents kidney failure.

The aim is to evaluate the long-term efficacy and safety of oral methylprednisolone compared to matching placebo on a background of routine RAS inhibitor therapy, in preventing kidney events in patients with IgA nephropathy and features suggesting a high risk of progression.

## Tackling Chronic Kidney Disease of Unknown Origin in Andhra Pradesh

Chronic kidney disease (CKD) is an important contributor to non-communicable disease burden. The major consequences of CKD include loss of kidney function leading to end-stage renal disease (ESRD) and accelerated cardiovascular disease (CVD). In India, CKD is now ranked number eight in the top ten causes of death list.

A recent analysis from a large global research study called the Million Deaths study showed a doubling of deaths due to CKD in India from 2003 to 2013. Importantly, the study documented significant geographic variations, with a sharper rise in the southern and eastern states of India.

Diabetes, chronic glomerulonephritis and hypertension are the commonest known reasons for the rise in the incidence of CKD in different geographical regions of India. Importantly, CKD that occurs due to as yet unknown local factors is one the largest contributors to the rising kidney disease burden.

In recent years, there have been multiple reports of high prevalence of CKD among rural communities of coastal Andhra Pradesh, most notably the Uddhanam region of Srikakulam district. The affected individuals are young males in the age group of 20 to 40 years. The disease presents very few symptoms

and progresses insidiously. The cause, if any, for this condition is not known. Though there is no conclusive evidence as yet, drinking water has often been suspected as being a prime cause.

Realising the need for focused research, ICMR in partnership with the Government of Andhra Pradesh launched the 'Grand Challenge' for identifying the root-causes of high incidence of CKDu and developing interventions for general improvement of health conditions. The "Study to Test, Operationalize Preventive approaches for CKDu in AP" known as STOP CKDu was awarded to The George Institute.

The STOP CKDu study is aimed at addressing all aspects of the problem. It will estimate the disease burden using rigorous scientific methodology and sociological tools and also undertake an environment mapping.

The implementation of the study would be monitored through a scientific technical advisory group constituted by ICMR and the Government of Andhra Pradesh.





## Lifestyle Intervention In Gestational Diabetes:

India has a high prevalence of gestational diabetes mellitus (GDM) among women, with 17.8% women in urban areas and 9.9% in rural areas developing diabetes during pregnancy. Women who have had GDM are at higher risk for type 2 diabetes later in life. Data suggest that, in India, 35 to 40% women with GDM run the risk of developing type 2 diabetes within five years of giving birth to a child.

To test whether an affordable and culturally acceptable lifestyle intervention, provided to women with GDM soon after childbirth, can help reduce the incidence of type 2 diabetes, The George Institute has embarked on a randomised controlled open-label trial in 16 public and private hospitals across India, Bangladesh, and Sri Lanka.

This trial, called the LIVING (Lifestyle Intervention in Gestational Diabetes) study, will generate knowledge related to the implementation of a preventive strategy embedded in resource-constrained health systems. The intervention includes group sessions and voice message prompts on physical activity, healthy diet,

and stress management. Participants are followed up for a median of 2 years, over the study period.

Study staff, specifically intervention facilitators (who administer the intervention) and outcomes assessors (who recruit participants and collect study data), have qualifications similar to those of health workers routinely appointed at government health facilities in the three countries. If shown to be successful, the intervention could be scaled up across the region, and has the potential to help prevent or delay the development of type 2 diabetes in more than a quarter of a million South Asian women with prior GDM.

The LIVING study is funded by the Global Alliance for Chronic Disease through the National Health and Medical Research Council of Australia and the Indian Council of Medical Research.

## New app for tackling diabetes in India

The George Institute has developed an innovative mobile based health app to enable people in India to access essential diabetes care.

The app was unveiled at an event in New Delhi that was attended by high profile guests including The Hon Gladys Berejiklian, Premier of NSW in Australia, Harinder Sidhu, Australian High Commissioner and Professor O.P Kalra Vice Chancellor of the Pandit B.D. Sharma Institute of Medical Sciences, Rohtak.

Professor Vivek Jha, Executive Director of The George Institute India said: "Around 50 million people in India have type 2 diabetes and that number is growing every year. The app will help people living in rural areas to access timely, affordable and guideline based healthcare in the community, reduce the risk of developing life-threatening complications and ultimately save lives."

The app is part of The George Institute's *SMARThealth* program known as the IMPACT Diabetes project which will train female community health workers, known as ASHAs, in the use of a smartphone app. They will then screen people in the communities, identify those with diabetes or at high risk of the disease, offer them

lifestyle and diet advice, refer them to the doctor for drug treatment and follow up on their adherence to treatment and control.

Ms Berejiklian, who officially launched the IMPACT Diabetes program, said:

"In rural India alone, more than 25 million people have diabetes and the number is rising rapidly. Providing access to affordable, evidence-based and quality-controlled healthcare is a real game changer for these communities and I am so pleased to see our technology helping save lives across the world."

The *SMARThealth* program has now grown to multiple locations in India, Indonesia and Thailand to provide screening and care for patients with hypertension, cardiovascular disease, diabetes and kidney disease.

Patients undergoing the screening will have their case history taken, undergo sugar level and blood pressure testing, and have their weight and height measurements recorded to calculate their risk score for diabetes. Those at high risk of, or with a diagnosis of diabetes, will then be followed up with referrals to physicians, lifestyle tips to modify diet and exercise and further visits by ASHAs to ensure their condition is being properly managed.





### FoodSwitch India: A novel approach to influencing consumer choices

With a view to supporting healthier food choices by consumers and help prevent diet-related health disorders, The George Institute has developed a novel app known as FoodSwitch. Designed in the form of a free smartphone app, it allows users to scan the barcodes of packaged foods at the supermarkets or at home, quickly see its nutritional rating and identify alternative foods that are healthier.

Currently, packaged foods available in Indian supermarkets have excess levels of total fat, sugar and salt in large serves of energy-dense foods. In addition, nutritional information on food packs is not easily interpretable, making it difficult for consumers to have access to healthy food choices. Foodswitch helps consumers with an easy to understand nutrition information and support the selection of healthier choices when shopping for food.

Apart from India, FoodSwitch is already available in several countries including Australia, New Zealand, Britain, China, South Africa and Hong Kong.

It is already being described as an innovative tool that helps consumers put dietary recommendations into practice to improve their health.

Food Switch India now provides over 14000 products with an easy to understand nutritional information to consumers. In addition to providing nutrition information in an easy to interpret format to consumers, the data behind the FoodSwitch smartphone application is consistently being used by government, non-government and independent research organisations to drive change, develop policy and monitor actions of creating healthier food environments. To-date, data from FoodSwitch has been used in over 60 peer-reviewed journal articles, four academic or government reports, and over 50 conference papers or proceedings.

## Quality, access and affordability of foods for vulnerable populations in India

India is suffering from a double burden of diet related ill health. This is due to the joint effects of nutritional deficiencies and the over-supply of adverse dietary components such as harmful fats, salt, added sugars and energy. There has been a significant national effort to address micronutrient deficiency disorders in India with strong evidence of success. Since 1990 it is estimated that the burden attributable to these conditions has fallen by almost two-thirds, yet millions continue to be affected every year.

Health problems caused by excess consumption of food containing adverse dietary components has over the same time risen by about 80%. An integrated program that addresses both the under and over supply of dietary components is now required to address both these issues.

The consequences of malnutrition caused by under-consumption of essential foods in India have fallen over the last decade-stunting among children has declined from 48% to 38% and underweight from 43% to 36% though overall prevalence remains high, as does the prevalence of anemia at 59% among children, 53% among women and 23% among men.

Over the same period, rates of overweight and obesity in India have almost doubled from 13% to 21% amongst women and from 9% to 19% among men.

To address this issue of diet related ill health, The George Institute India is undertaking a new

research project entitled "Quality, access and affordability of foods for vulnerable populations in India".

The aim of the project is to quantify the access to healthy foods from retail outlets in urban, rural and slum communities of India. Specific objectives include, for packaged and unpackaged foods, measurement of the types of foods available, the completeness of food labelling, the nutritional quality of the foods and the price of the foods.

The study, funded by the Bill and Melinda Gates Foundation, is a cross-sectional survey of the foods available in the large, medium and small retail outlets serving urban, rural and slum communities in six States: Delhi, Haryana, Telangana, Andhra Pradesh, Bihar and Uttar Pradesh.





## Mental health, neurology and trauma

*Mental health is an important but highly underappreciated cause of disability globally and carries enormous socio-economic burden. Epidemiological studies show that one in every five Indians suffer from some form of mental disorder. The prevalence of common mental disorders is particularly high in the age group of 20-40, which are some of the most productive years of life. An important issue that prevents the acknowledgement of these issues is the stigma associated with the diagnosis of a mental condition.*

*Our large-scale collaborative research in neurological conditions focusses on improving the outcomes those with chronic neurologic conditions like stroke, epilepsy and dementia. Research that helps better rehabilitate these patients using participative approaches and at low cost is currently lacking in India. Through a network of investigators, The George Institute is promoting large-scale collaborative approach to answer these important clinical questions.*

*Trauma, on the road and at home, is a significant health and socio-economic burden in India. It is estimated that every year about 150,000 people die of road traffic accidents in India. More alarmingly, about four become disabled for every death. The young form a disproportionately high proportion of trauma deaths. An area of focus for the injury researchers at The George Institute is generating evidence to improve the trauma care in India. Using multidisciplinary approaches, our researchers in the Sydney and Oxford offices have tested and developed interventions in many countries and bring their global expertise to generate evidence specifically tailored to the Indian healthcare and transport system.*

## Promoting mental health in rural areas

India is facing a huge burden of mental health illnesses and associated stigma, but it has few trained professionals to provide the necessary care and treatment. Many people suffering from mental disorders go undiagnosed and untreated, especially in rural communities.

“Depression, anxiety, stress and associated risk of suicide are some of the most common mental disorders” says Dr Pallab Maulik, lead author of an innovative study looking at reducing stigma associated with mental health and providing accessible mental healthcare through primary care services using technology-enabled solutions. “The treatment gaps in consumers seeking adequate healthcare for common mental disorders is around 75-80% in resource limited settings such as India, as compared to 40-50% in developed countries. Training mental health professionals in sufficient numbers in these settings is simply not pragmatic. We need to develop targeted innovative strategies to increase access to a basic standard of mental healthcare”.

To provide feasible solutions to these problems, The George Institute conducted a pilot study providing technology-enabled mental healthcare solutions through primary health workers across 42 villages covering 40,000 adults in West Godavari district of Andhra Pradesh.

There was a significant increase in use of mental health services by those in need of such care. There was also reduction in the depression and anxiety scores between the start and end of the intervention among them. Stigma perceptions related to mental health also reduced significantly following the intervention.

Currently, the program is being expanded across two states in north and south India covering 165,000 adults to assess the effects of the intervention across diverse populations. This will help in scaling up the services across larger geographical locations and population groups.





## International collaboration on improving stroke care

Stroke is a worldwide health problem and, together with heart disease, is now one of the most common causes of death globally. In low- to middle-income countries like India, the number of people having stroke or dying from stroke is increasing. India now has the third-highest number of people dying from stroke. The George Institute, supported by The University of Central Lancashire, has initiated a new three-year research program to create a global partnership that can improve stroke care in India.

The research aims to develop some packages for nursing care of stroke patients based on international guidelines that can be integrated into routine nursing practices in stroke care units in India. These packages could lead to improved outcomes for stroke patients.

Researchers working in existing stroke units at Christian Medical College, Ludhiana, All India Institute for Medical Sciences, New Delhi, and Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram and other stroke researchers from the UK, India and Australia will support the program.

Dr Pallab Maulik, Head of Research at The George Institute said: "Research partnerships between UK researchers and those in low-and-middle-income countries ensure that needed research capacity is built and global challenges such as stroke can be addressed effectively."

## International Orthopedic Multicenter Study in fracture care

Despite the fact that orthopedic trauma injuries represent a serious cause of mortality and morbidity worldwide, there is little data in low-and-middle-income countries quantifying the complications of fracture and describing current treatment practices. Over 90% of trauma injuries in these countries are caused by road accidents and over 60% of them sustain musculoskeletal injuries. This injury burden has not been studied in developing countries, such as India. To address this critical knowledge gap, a large multinational prospective observational study of 40,000 patients with musculoskeletal trauma in Africa, Asia, and Latin America is currently underway. This observational study is being conducted in 12 Indian hospitals on 10,000 patients. As of now 7000 patients have been recruited in the 12 sites. The International Orthopedic Multicentre Study in Fracture Care study seeks to determine the incidence of major complications (mortality, reoperation, and infection) within 30 days after a musculoskeletal injury and to determine patient, treatment and system factors associated with these major complications in low-and-middle-income countries.

This study coincides with the World Health Organization's Global Road Traffic Safety Decade (2011-2020) and other international efforts to reduce the burden of injury on developing populations. Insights gained from the INORMUS study will not only inform the global burden of orthopaedic trauma but also drive the development of future trials/studies to evaluate simple solutions and practical interventions to decrease deaths and improve the quality of life for trauma patients worldwide. The findings from the study will further inform measures to mitigate the burden of orthopedic injury-related trauma in India and other low-and-middle-income countries.





## Addressing India's unheard cries of drowning

Drowning accounts for 8.9% of the accidental deaths in India and is the second largest cause of unnatural deaths next only to road accidents. The World Health Organization in its latest report on drowning reported that 3,72,000 people die every year worldwide due to drowning. Ninety percent of these deaths takes place in low-and-middle-income countries. It is a major contributor towards mortality rates in South-East Asia. Another WHO report states that one person drowns every eight minutes in India, making it an important cause of mortality in the country. With the coastline covering 7517 km, a large proportion of people are constantly in contact with water for livelihood, transportation or agricultural activities. Water bodies are an integral part of communities mostly in rural parts of the country. Increase in the number of natural disasters like floods and cyclones, especially in north-eastern region of the country, have also contributed to the number of fatalities. The most affected states in India are Madhya Pradesh, Maharashtra, Karnataka and Tamil Nadu, according to the latest National Crime Records Bureau report in 2015.

Gender is an important factor in drowning cases as males are more prone to it as compared to females. Major reason for this is their exposure to water and riskier behaviour. The NCRB data also shows that the proportion of male deaths due to drowning is more than female deaths. Major reason for this is their exposure to water and riskier behavior. Another important factor which cannot be ignored is age as drowning is a leading cause of death among children of age group 0-5 years. Most of these incidents takes place in rural areas.

Dr Jagnoor, Head, Injury Division, The George Institute, says "Drowning is the leading cause of death in children aged 2-5 years in the South Asian Region. What it means from a public health perspective is that we are reducing under five mortality with good immunization coverage, but losing children to drowning in this population." Lack of supervision by parents who are mostly out working, easy proximity to ponds and other water bodies and lack of proper swimming techniques among children are some of the reasons for the high rates of child mortality due to drowning.

In spite of this huge burden of drowning deaths, there is limited research on drowning in India and other low and middle income countries. The George Institute has embarked on a new research study that seeks to explore community perceptions of drowning, the circumstances surrounding it and the social impact of drowning and other water-related disasters.

The mixed methods study is being funded by the Royal National Lifeboat Institution UK and will also enquire into community risk perception and disaster preparedness. Disaster management practices in vulnerable communities will also be studied.

The project which is being implemented through partners in Assam and West Bengal will interview people from the community to understand their experience of such disasters and identify enablers and barriers to implementing drowning prevention intervention in high risk populations.





## Rehabilitation prescription allowing injury recovery

Recovery after traumatic injury so that a person can have normal function and mobility requires effective management practices right from the time of injury to long term care after discharge from the hospital through proper rehabilitation services.

Evidence suggests that early rehabilitation can result in better health outcomes, reduce costs by shortening hospital stays, reduce disability, and improve quality of life. Physiotherapy is one of the important prescriptions within rehabilitation, targeting pain management and relief; prevention of pressure sores; endurance and posture training; therapeutic exercise; and recommendation to achieve optimal functional outcomes. However, rehabilitation services in India are not well developed often leading to long-term disability for trauma victims.

As part of the Australia-India Trauma Systems Collaboration, Rehabilitation Prescription Allowing Injury Recovery (REPAIR) project, an observational study was first conducted to understand the rehabilitation practices that exist for people hospitalized with lower limb fractures following a traumatic injury.

As a follow-up to the observational study, a trial was started in June 2017. The trial with a targeted total of 382 participants is being conducted in three trauma centres at Delhi, Mumbai, and Ahmedabad.

Participants and their families received training on the exercises before discharge, along with an exercise manual with tailored information related to the set and frequency of exercises. The trial is continuing with more than 50% recruitment completed.

It is expected that the results of the study will test a model for rehabilitation contextualized to our nation's context.

## Salt reduction intervention package for school adolescents and their parents:

High blood pressure is the leading risk factor for cardiovascular diseases in India. Twenty four percent of the 2.3 million deaths from cardiovascular diseases are attributed to high blood pressure each year. The number of people suffering from hypertension is anticipated to increase from 118 million in 2000 to 213 million in 2025.

Evidence shows that salt intake is a leading cause of high blood pressure. India, along with other member states of the World Health Organization, has committed to 30% reduction in mean salt consumption by 2025 to control the growing epidemic of non-communicable diseases.

The George Institute, along with the PGIMER Chandigarh, is undertaking a research study to measure salt consumption in identified rural populations of Chandigarh. The study will be carried out with early adolescents to bring about a change in the salt intake in families. A Randomized Controlled Trial will be carried out in three phases: Baseline assessment, intervention phase and endline assessment.

The study will comprise two groups: intervention group and control group. Detailed intervention using interpersonal communication, educational activities and class room teaching will be given to the intervention groups and only pamphlets will be used in the control group to assess the efficacy of behavioral change.





## Research Dissemination

*The George Institute believes that no research is complete until its findings have been conveyed in appropriate format to all stakeholders. While this is true for all projects, it takes a special meaning in the case of implementation research. Translating evidence from research into practice and policy change requires engagement of other researchers, guideline development groups, professional and civil societies, governments, funding agencies, non-government organisations, consumer organisations, corporates and business houses, global health organisations, media personnel and educational institutions. In addition to the standard academic formats of research dissemination—publication in academic journals and presentation in scientific meetings—our communication and advocacy team develops appropriately packaged messages that can be conveyed to other stakeholders. We hold dissemination workshops, policy round tables, public awareness events, work with colleagues in print and visual media and use brochures, films, animations, and social media to improve the impact of the messages.*

## The George Institute India Tenth anniversary celebrations

In 2017, The George Institute, India completed 10 years of research work. A series of activities including policy roundtables, competition for school and college students and a 10th anniversary special oration event was held to mark the occasion. The oration was delivered by Professor K Srinath Reddy, President of the Public Health Foundation of India, who played a role in bringing The George Institute to India.

Giving a sweeping overview of the evolution of cardiovascular and public health research in India over 50 years, and using examples from the work of several researchers, he highlighted the progress made, described the scope of current and upcoming challenges, and reflected on possible solutions.

The chief guest, Ms Harinder Sidhu, Australian High Commissioner to India, congratulated The George Institute for a successful 10 years in India, and recognized its high quality work adding that this could be the foundation for expanding the co-operation between the two countries under the new India-Australia Health MOU.

Post the oration, there was a lively panel discussion on the topic of Patient and Public participation in Healthcare Delivery, moderated by Professor Ian Jacobs, Vice-Chancellor of UNSW Sydney.

An essay competition for school students entitled "What would you like your policymakers to know about your health?" was organised during the year and the prizes given away at the event. A health innovation contest for medical and engineering college students was also held.

The George Institute, India also organised other policy dialogues in the year which included a roundtable on data and women's health, roundtable on mental health of scheduled caste and scheduled tribe populations, panel discussion on reducing road traffic injuries in India, a kidney disease and women's health roundtable and policy dialogues on primary healthcare and universal health coverage. A media workshop on road safety reporting was held with the World Health Organization and the critical appraisal skills for health reporting program was introduced in Peking University.





## Our Governance

### Our Directors

#### **Professor Vivekanand Jha**

Executive Director,  
The George Institute for Global Health, India  
James Martin Fellow, The George Institute for  
Global Health, University of Oxford



Professor Vivekanand Jha is the Executive Director, The George Institute for Global Health, India, and James Martin Fellow at The George Institute for Global Health at the University of Oxford. Prior to joining The George Institute, he was Professor of Nephrology at the Postgraduate Institute of Medical Education and Research in Chandigarh, India. Vivek serves on the international advisory boards of several organisations, including membership of the WHO Expert Advisory Panel on Human Cell, Tissue and Organ Transplantation, and the executive committee of the International Society of Nephrology. More recently, he was chosen as the president elect of the International Society of Nephrology from 2019 to 2021. Professor Jha is a physician with a specialisation in the area of kidney diseases and he focuses on emerging public health threats globally and in India. He is particularly interested in using multi-disciplinary approaches and innovation to address the major challenge posed to humanity by non-communicable diseases.

#### **Anushka Patel**

Chief Scientist and Professorial Fellow  
The George Institute for Global Health



Anushka is a Professor of Medicine at UNSW and a cardiologist at Royal Prince Alfred Hospital in Sydney, Australia. She undertook her medical training at the University of Queensland, with subsequent postgraduate research degrees from Harvard University and the University of Sydney.

As the Chief Scientist of the George Institute for Global Health, she has a key role in developing and supporting global strategic initiatives across the organisation. Her personal research interests focus on developing innovative solutions for delivering affordable and effective cardiovascular care in the community and in acute care hospital settings.

Anushka currently leads research projects relating to these interests in Australia, China and India. She is supported by a Senior Research Fellowship from the Australian National Health and Medical Research Council (NHMRC).

**Dr Pallab K. Maulik**

Deputy Director and Director of Research,  
The George Institute for Global Health, India

Dr Pallab K. Maulik joined The George Institute, India as the Head of Research in early 2010. Dr Maulik brings a wealth of experience to the Institute, in particular expertise in mental health.

Dr Maulik has worked with the World Health Organization (WHO), Geneva on Project Atlas and other mental health programs, and clinically as a psychiatrist in India and Australia. After training as a psychiatrist at the All India Institute of Medical Sciences, New Delhi, Dr Maulik received training in public health at the London School of Hygiene and Tropical Medicine, as well as Johns Hopkins School of Public Health where he studied his Masters and Doctoral training. He is a Wellcome Trust-DBT India Alliance Intermediate Career Fellow.

His particular research interests include social determinants of health, especially mental health services, mental disorders, international mental health, and intellectual disability.

**Amit Khanna**

Director, Finance and Operations,  
The George Institute for Global Health, India

Amit joined The George Institute for Global Health, India in 2013 as Director of Finance and Operations. Prior to joining our team, he worked in the services industry with companies providing services such as auditing and consulting, shipping and logistics, online classifieds/advertising, internet and technology-based solutions.

He instantly connected with the George Institute's mission and values and is very passionate about being instrumental in driving policy changes in India. Amit holds a degree in Commerce from Delhi University and is a member of the Institute of Chartered Accountants of India.

**Our Advisors****Professor S.V. Madhu**

Department of Medicine, Division of Endocrinology & Metabolism, University College Of Medical Sciences & Guru Teg Bahadur Hospital, New Delhi

**Dr Usha Raman**

Associate Professor & Head, Department of Communication, University of Hyderabad.

**Dr Rajapurkar Mohan Manohar**

Director, Postgraduate Studies & Research, Department of Nephrology, Muljibhai Patel Urological Hospital, Nadiad, Gujarat

**Dr D.K. Shukla**

Director, National Institute of Medical Statistics, ICMR, New Delhi

**Dr Jagdish Kaur**

Regional Adviser, WHO South East Asia Regional Office, New Delhi

**Dr Pratap Sharan**

Professor, Department of Psychiatry, All India Institute of Medical Sciences New Delhi

**Dr Jitendar Sharma**

Director & CEO, Andhra Medtech Zone Ltd., Visakhapatnam

**Dr H.S.D. Srinivas**

Tata Trust, Mumbai

**Dr Shirshendu Mukherjee**

Mission Director, BIRAC



## Our Key Partners, Funders and Collaborators

### Key Partners

- Indian Council of Medical Research (ICMR)
- National Health Systems Resource Centre of the Government of India
- Duke University (through Duke Global Health Institute)
- Public Health Foundation of India (PHFI)
- Health and Family Welfare Department, Government of Andhra Pradesh
- Amity University
- Post-Graduate Institute for Medical Education and Research, Chandigarh
- Christian Medical College, Vellore
- University of Hyderabad

### Key Funders

- Department of Biotechnology
- Indian Council of Medical Research
- National Health and Medical Research Council Australia (NHMRC)
- University of Oxford
- Wellcome Trust -DBT India Alliance
- Baxter Foundation
- Grand Challenges, Canada
- The George Institute for Global Health Australia
- London School of Health and Tropical Medicine
- Harvard University

### Our global affiliations



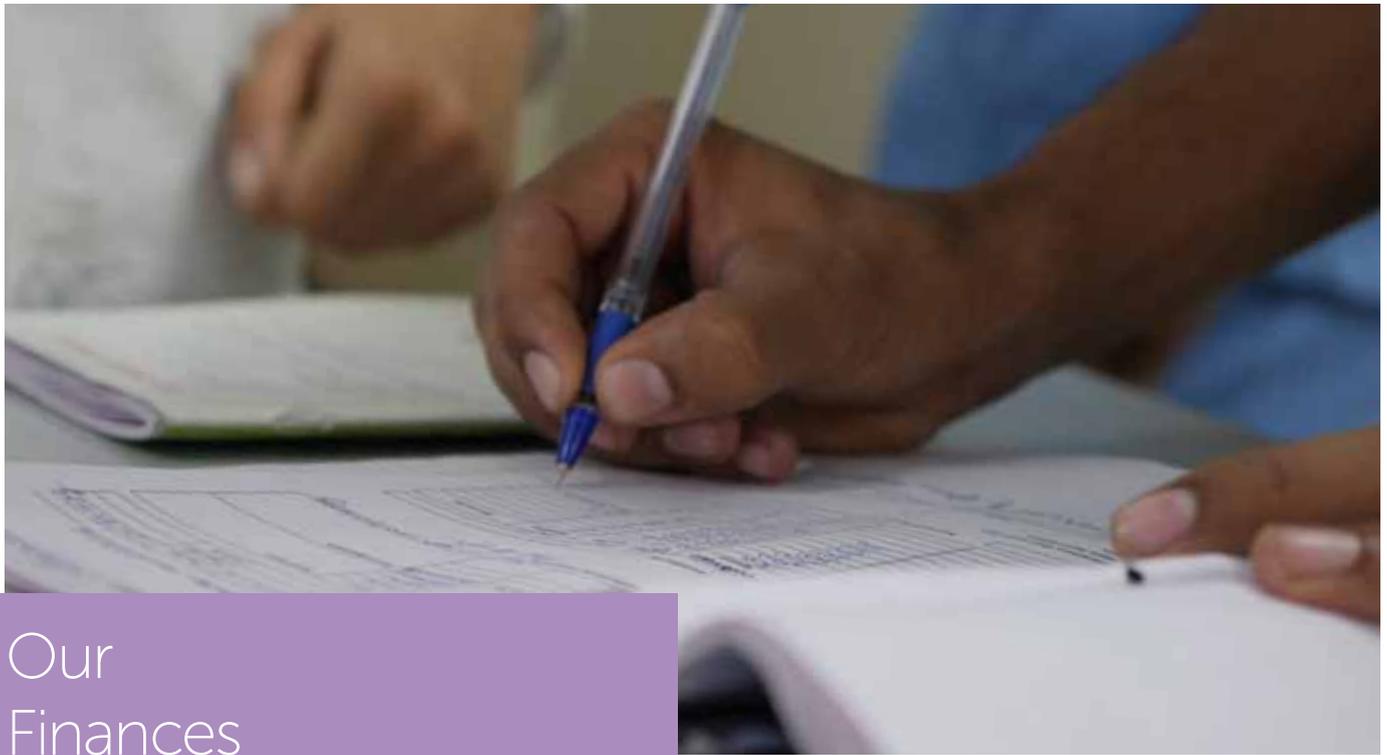


### Key collaborators

- Centre for Chronic Disease Control, New Delhi
- Christian Medical College and Hospital, Ludhiana
- Guru Tegh Bahadur Hospital and University College of Medical Sciences, New Delhi
- Indian Institute of Public health, Bhubaneshwar
- Indian Institute of Public Health, Hyderabad
- Post-Graduate Institute of Medical Education and Research, Chandigarh
- Public Health Foundation of India, New Delhi
- Rishi Valley Health Centre, Chittoor
- Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow
- Sree Chitra Tirunal Institute of Medical Sciences and Technology
- University of Hyderabad
- Apollo Group of Hospitals
- Care Group of Hospitals
- Fortis Group of Hospitals

### Key International collaborators

- Imperial College, London
- King's College, London
- London School of Health and Tropical Medicine
- Monash University
- University of Oxford
- University of Sydney
- World Health Organization, Geneva
- Harvard University
- University of New South Wales, Sydney
- National University of Singapore



## Our Finances

Income & Expenditure account,  
for the year ended 31st March 2018  
(All amounts in Indian Rupees)

	2018	2017
<b>Income</b>		
Project Funds & Grants	125,026,290	124,598,236
Other Income	4,211,298	3,405,394
<b>I Total Income</b>	<b>129,237,588</b>	<b>128,003,630</b>
<b>Expenditure</b>		
Employee Benefit Expenses	79,622,967	65,886,160
Finance Cost	6,886	11,787
Depreciation expense	1,772,951	3,161,384
Operating and Other Expenses	43,579,924	56,555,381
<b>II Total Expenditure</b>	<b>124,982,728</b>	<b>125,614,712</b>
<b>III Surplus/(deficit) (I-II)</b>	<b>4,254,860</b>	<b>2,388,918</b>
<b>IV Tax Expense</b>	<b>-</b>	<b>-</b>
<b>V Balance carried to Reserves (III-IV)</b>	<b>4,254,860</b>	<b>2,388,918</b>

Balance Sheet,  
as at 31st March 2018  
(All amounts in Indian Rupees)

	2018	2017
<b>Sources of funds</b>		
<b>Equity and Liabilities</b>		
1. Shareholders' Funds	-	-
I. Share capital	25,624,920	25,624,920
II. Reserves & surplus	33,944,153	29,689,293
<b>Total equity</b>	<b>59,569,073</b>	<b>55,314,213</b>
2. Non-current liabilities		
I. Long-term provisions	1,238,931	-
Total non-current liabilities	1,238,931	
3. Current liabilities		
I. Trade payables	2,459,088	4,432,889
II. Other current liabilities	46,658,819	26,606,766
III. Short-term provisions	6,292,490	5,165,337
Total current liabilities	55,410,397	36,204,992
Total liabilities	56,649,328	36,204,992
<b>Total equity and liabilities</b>	<b>116,218,401</b>	<b>91,519,205</b>
<b>Application of funds</b>		
<b>Assets</b>		
1. Non-current assets		
I. Fixed assets		
- Tangible assets	3,482,063	4,835,111
II. Long-term loans and advances	3,190,340	6,691,915
<b>Total non-current assets</b>	<b>6,672,403</b>	<b>11,527,026</b>
2. Current assets		
I. Cash and bank balances	91,239,114	51,325,664
II. Short-term loans and advances	1,600,736	970,651
III. Other current assets	16,706,148	27,695,864
Total current assets	109,545,998	79,992,179
<b>Total assets</b>	<b>116,218,401</b>	<b>91,519,205</b>



## Our Team

**Vivekanand Jha**  
Executive Director

**Pallab Maulik**  
Deputy Director &  
Director of Research

**Amit Khanna**  
Director, Finance & Operations

**Amanpreet Kaur**  
Research Fellow

**Atanu Ghosh**  
Senior Project Supervisor

**Amritendu Bhattacharya**  
Lead Biostatistician

**Arpita Ghosh**  
Senior Research Fellow

**Abdul Salam**  
Senior Research Fellow

**Abhinav Bassi**  
Research Fellow

**Alpana Saha**  
Head of Fundraising

**Abdul Ameer**  
Project Manager

**Bhanu Bangari**  
Android Developer

**Balaji Gummidi**  
Senior Project Manager

**Balaji Rao**  
Senior Project Supervisor

**Balraj Mangali**  
Field Supervisor

**Devan Pericherla**  
Senior iOS Developer

**Deepak Sati**  
Accounts Assistant

**Disha Jain**  
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**Devaki Nambiar**  
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Health Systems & Equity

**Esam Hariprasad**  
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Research Fellow

**Mercian Daniel**  
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Administration

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**Tekpally Jyothi**  
Administrative Officer

**Tarun Gupta**  
Digital Communications Advisor

**Veena Singh**  
Senior Research Fellow



# ATA

Since 2007

**300+**  
publications and other academic outputs

In 2017–18

**64**  
staff

**12**  
states hosting our projects

**72**  
peer reviewed publications

**51**  
Other academic outputs

The George Institute for Global Health, India  
[www.georgeinstitute.org.in](http://www.georgeinstitute.org.in)

# GLANCE